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| 09/752,501   | 12/29/2000  | Kireeti Kompella     | Juniper-4 (JNP-0026) | 9488             |
| 26479  | 7590        | 02/25/2005           | EXAMINER             |                  |
| STRAUB & POKOTYLO<br>620 TINTON AVENUE<br>BLDG. B, 2ND FLOOR<br>TINTON FALLS, NJ 07724 |             |                      | JONES, PRENELL P     |                  |
|  |             |                      | ART UNIT             | PAPER NUMBER     |
|  |             |                      | 2667                 |                  |

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/752,501

Applicant(s)

KOMPELLA, KIREETI

Examiner

Prenell P Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-57 and 60-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 18, 19, 36 and 70 is/are allowed.
- 6) ☐ Claim(s) 1-17, 20-35, 37-39, 57 and 63 is/are rejected.
- 7) ☐ Claim(s) 40, 41, 53-55, 60 and 61 is/are objected to.
- 8) ☐ Claim(s) 42-52, 56, 62 and 64-69 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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***Election/Restrictions***

1. Applicant's election with ~~out~~ traverse of claims 1-39 and 70 in the reply filed on October 13, 2004 is acknowledged.
2. Applicant's election with traverse of claims 1-39 and 70 in the reply filed on October 13, 2004 is acknowledged. The traversal is on the ground(s) that the Applicant argues that claims 42-52, 56, 62 and 64-69 are not patentably distinct from elected claims 6, 3, 18 and 1. This is not found persuasive because claims 42-52, 56 and 64-69 are drawn to establishing a path wherein a first intermediary node is received whereby the corresponding information includes a first and second portion of a path related to at least one constraint of a set of constraints.
3. Applicant has indicated in his response to Restriction/Election that claims 42-52, 56 and 64-69 are not patentably distinct from elected claims 6, 3, 18 and 1. However, Applicant neglects to give reasons why the claims are not patentably distinct.

Moreover, the following non-elected claims will be rejoined and considered for examination in light of Applicant amendment of non-elected claims 40, 53, 57, 60, 61 and 63, which have been amended to depend on elected claims 6, 5, 35 and 29 respectively. Claims 41 and 54-55 are also rejoined and considered for examination because they depend on amended claims 40 and 53.

In summary, claims 1-39, 40, 41, 53-55, 57, 60, 61, 63 and 70 are considered for examination, and claims 42-52, 56, 62 and 64-69 are non-elected.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Objections***

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4. Claims 53-55 are objected to because of the following informalities: Applicant is claiming in amended claim 53, line 12 "the first portion," Examiner questions if the phrase in question should read as "a first portion." Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-17, 20-35, 37-39, 57 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao et al in view of Troxel et al and Hahne et al.

Regarding claims 1-17, 37-39 and 63, Cao discloses (Abstract, Fig. 1, col. 5, line 10 thru col. 7, line 67, a communication system that employs explicit routing protocols between a plurality of LSR (label switched router), explicit routing is a subset of constraint-based routing, whereby explicit route is represented in a label-request message as a list or group of nodes, node selected from group of nodes, constraint-based route is encoded as a series of ER-hops, each node along the path attempts to determine a loop-free path (partial path), (col. 6, line 4 thru col. 7, line 67) "next" router attempt to fulfill constraints if selected node fails, nodes/LSR determines if it is adjacent to abstract node, if a node is not part of the abstract node (a node to which constraint process is delegated) described by a first ER-hop an error message is returned indicating "Bad initial ER-hop and Bad explicit routing TLV" error, router establish a plurality of

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partially distinct paths, ER-hops are loose hops, if next node is a strict ER-hop, then there is an error and it is represented by a "Bad strict node" error, (col. 8, line 20 thru col. 10, line 41) path parameters include peak rate, committed rate, service granularity, peak rate defines bandwidth, delay variations, area border/boundary router gateway, communication of "downstream lost" status message and "upstream lost" status message in detection of broken path. However, Cao is silent on autonomous system and alternate node carrying out policy/constraint as associated with messages when selected node fails. In analogous art, Troxel disclose (Abstract, Fig. 1, 2, col. 3, line 13 thru col. 4, line 40) predictive routing of packets in a multi-node environment wherein the environment maybe an autonomous system that implements OSPF routing, and the architecture further includes that the nodes can be a plurality of routers, area border nodes, parameters provided for nodes and links, OSPF metric may include link characteristics such as (col. 7, line 10-38) signal strength, link quality, speed, flow chart demonstrating message process that include pointers and implied operands, and Hahne discloses (Abstract, Fig. 1 & 4, col. 3, line 45 thru col. 4, line 67) communicating packets in a communication system wherein the architecture includes border gateway, plurality of routers, border gateway, adjacent border routers, generation of PATH, PROBE, RSVP, GRAFT, REFRESH, and RESV messages, policy (constraint-based) associated with size, bandwidth, peak rates, sum of mean rates, (col. 5, line 3 thru col. 6, line 67, col. 7, line 2 thru col. 9, line 50) router forwards messages upstream to routers and downstream routers, border routers communicating various messages that are used to assist in performing set-up for communication, the next or previous border router verifies failed router, thereby attempting to complete request, an alternate partial route/path is established around the failure of the failed router, identity of adjacent upstream and downstream border routers are stored for scheduling, GRAFT and PROBE messages set up partial path, so that failed router is by-passed and another router makes an attempt. Therefore, it would have

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been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement an autonomous gateway node and providing an alternate router to take over attempting policy/constraint request messages when select node/router fails as taught by the combined teachings of Troxel and Hahne's packet routing system that utilizes border routers and the OSPF routing protocol with the teachings of Cao for the purpose of further successfully providing communication in a routing environment.

Regarding claims 20-28, as indicated above, Cao discloses (Abstract, Fig. 1, col. 5; line 10 thru col. 7, line 67, a communication system that employs explicit routing protocols between a plurality of LSR (label switched router), explicit routing is a subset of constraint-based routing, whereby explicit route is represented in a label-request message as a list or group of nodes, node selected from group of nodes, constraint-based route is encoded as a series of ER-hops, each node along the path attempts to determine a loop-free path (partial path), (col. 6, line 4 thru col. 7, line 67) "next" router attempt to fulfill constraints if selected node fails, nodes/LSR determines if it is adjacent to abstract node, if a node is not part of the abstract node (a node to which constraint process is delegated) described by a first ER-hop an error message is returned indicating "Bad initial ER-hop and Bad explicit routing TLV" error, router establish a plurality of partially distinct paths, ER-hops are loose hops, if next node is a strict ER-hop, then there is an error and it is represented by a "Bad strict node" error, (col. 8, line 20 thru col. 10, line 41) path parameters include peak rate, committed rate, service granularity, peak rate defines bandwidth, delay variations, area border/boundary router gateway, communication of "downstream lost" status message and "upstream lost" status message in detection of broken path. Cao further discloses (col. 11, line 15-40) that the methods achieved can be implemented using appropriate processor instructions used in combination with software and hardware logic.

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Regarding claims 29-35 and 57, as indicated above, Troxel disclose (Abstract, Fig. 1, 2, col. 3, line 13 thru col. 4, line 40) predictive routing of packets in a multi-node environment wherein the environment maybe an autonomous system that implements OSPF routing, and the architecture further includes that the nodes can be a plurality of routers, area border nodes, parameters provided for nodes and links, OSPF metric may include link characteristics such as (col. 7, line 10-38) signal strength, link quality, speed, flow chart demonstrating message process that include pointers and implied operands.

***Allowable Subject Matter***

5. Claims 18, 19, 36 and 70 are allowed over prior art.

6. Claims 40, 41, 60, 61 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Although the prior art discloses a communication system that employs explicit routing protocols between a plurality of LSR (label switched router), explicit routing is a subset of constraint-based routing, whereby explicit route is represented in a label-request message as a list or group of nodes, node selected from group of nodes, constraint-based route is encoded as a series of ER-hops, each node along the path attempts to determine a loop-free path (partial path), nodes/LSR determines if it is adjacent to abstract node, if a node is not part of the abstract node (a node to which constraint process is delegated) described by a first ER-hop an error message is returned indicating "Bad initial ER-hop and Bad explicit routing TLV" error, router establish a plurality of partially distinct paths, ER-hops are loose hops, if next node is a

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strict ER-hop, then there is an error and it is represented by a "Bad strict node" error, path parameters include peak rate, committed rate, service granularity, peak rate defines bandwidth, delay variations, area border/boundary router gateway, communication of "downstream lost" status message and "upstream lost" status message in detection of broken path, predictive routing of packets in a multi-node environment wherein the environment maybe an autonomous system that implements OSPF routing, and the architecture further includes that the nodes can be a plurality of routers, area border nodes, parameters provided for nodes and links, OSPF metric may include link characteristics such as, signal strength, link quality, speed, flow chart demonstrating message process that include pointers and implied operands, communicating packets in a communication system wherein the architecture includes border gateway, plurality of routers, border gateway, adjacent border routers, generation of PATH, PROBE, RSVP, GRAFT, REFRESH, and RESV messages, policy (constraint-based) associated with size, bandwidth, peak rates, sum of mean rates, router forwards messages upstream to routers and downstream routers, border routers communicating various messages that are used to assist in performing set-up for communication, the next or previous border router verifies failed router, thereby attempting to complete request, an alternate partial route/path is established around the failure of the failed router, identity of adjacent upstream and downstream border routers are stored for scheduling, GRAFT and PROBE messages set up partial path, so that failed router is by-passed and another router makes an attempt they fail to teach or suggest to determine whether the node is a tail-end, head-end or intermediate node, if it is determined that the node is a tail-end node, and at least one network path determination constraint has been satisfied, then signaling back to an upstream node of that path that the path is O.K., determining whether a strict-hop node is specified as a next node of an explicit path constraint, a loose-hop node is specified as a next node of an explicit path constraint or no node is specified as an explicit path



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constraint, if a strict-hop node is specified as a next node of an explicit path constraint, then applying each of the at least one network path determination constraint to an appropriate one of a link between the node and the strict-hop node, and the partial path defined, determine whether to delegate constraint processing to another device and if it has been determined that constraint processing has been delegated to another network element, forwarding the message carrying the at least one network path determination constraint to the other device, a table including a second entry representing an accumulated value for a second attribute of a node connected to the node and a third entry storing a result of a specified operation performed on one of the first entry and the second entry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prenell P. Jones whose telephone number is 571-272-3180. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prenell P. Jones

February 22, 2005



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2/22/05